



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/829,700	04/10/2001	Volker Kuhnel	33495	1771

116 7590 01/03/2005

PEARNE & GORDON LLP  
1801 EAST 9TH STREET  
SUITE 1200  
CLEVELAND, OH 44114-3108

EXAMINER
----------

GRAHAM, ANDREW R

ART UNIT	PAPER NUMBER
----------	--------------

2644

DATE MAILED: 01/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 09/829,700	<b>Applicant(s)</b> KUHNEL ET AL.	
	<b>Examiner</b> Andrew Graham	<b>Art Unit</b> 2644	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 September 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-9 is/are rejected.
- 7) ☒ Claim(s) 5 and 10-12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments filed September 3, 2004 have been fully considered but they are not persuasive, as further explained below.

In regards to Claims 1 and 2, the applicant has stated on lines 1 and 2 of page 9 that the applied reference, Ishige, teaches "using different compensation according to a threshold, but the reference does not suggest combining parameters as recited in the claim". The examiner respectfully disagrees. "Parameter" as recited in the claims, is a term of broad reasonable interpretation. The thresholds cited by the applicant correspond to a sound pressure level of normal hearing and a sound pressure level of impaired hearing, both at a loudness. The association of a loudness and a sound pressure level for each point at least read on "parameters" relevant to normal and impaired loudness perception. The value of the gain produced, G, at least reads on a weighted loudness "parameter".

***Drawings***

2. The amendments made to the specification, made in regards to the previous objections involving the specification and the drawings, are sufficient to overcome the previous objections. Accordingly, said objections are hereby withdrawn.

*Claim Rejections - 35 USC § 112*

3. Claims 3-4 and 6-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As amended, Claim 3 states on page 5, lines 5-9 "adjusting the hearing aid using one or both of (1) measured and quantified loudness perception parameters of the individual weighted by a first factor and (2) normal loudness perception parameters weighted by a second factor". Alternately stated, it is now claimed that adjustments made may based on first weighted individual parameters or second weighted individual parameters. This concept is not supported by the original disclosure. The fourth line of the paragraph on page 8 of the specification states:

Although it would be possible to obtain the targeted reference settings for the hearing aid already on the basis of this individual HVSL/LOHL factor, to determine the gradient  $a$  at 0 dB hearing loss by extrapolation (dotted curve in fig. 3) and to set the hearing aid accordingly, it has been found that the setting of the hearing aid can be substantially improved if data on the healthy ear are also included in the equation. According to the invention the normal loudness perception should be used as a reference for determining the individually needed compression at 0 dB hearing loss.

In view of this passage, it appears that the use of only the individual parameters would have been supported, but not the use of weighted individual parameters. The singular use of normal parameters is not specified, weighed or unweighted.

Appropriate correction or clarification is required, which may include either canceling the wording of the claim indicated above that involves new matter, or citing page and line numbers in the original disclosure that support such limitations.

The matter that was indicated allowable in the prior art involved the use of both sets of weighted parameters, not either of the sets of weighted parameters. Accordingly, the prior indication of allowability is hereby withdrawn, as the amended version of Claim 3 does not include all of the limitations of the base claim and any intervening claims, as suggested previously.

Claims 4 and 6-9 are rejected in view of their respective dependencies upon Claim 3.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. **Claims 1 and 2** are rejected under 35 U.S.C. 102(e) as being anticipated by Ishige et al (USPN 6094489). Hereafter, "Ishige et al" will simply be referred to as "Ishige".

Ishige discloses a digital hearing aid with particular sound processing and compensation. The compensation by the system of Ishige is based on a predetermined input sound pressure, wherein the compensation is performed according to the user's hearing characteristic when the input sound pressure is above the predetermined pressure, but is performed according to a changed user's hearing characteristics when the input sound pressure is below the predetermined pressure (col. 10, lines 64-67). Figures 5-8 illustrate a first embodiment of such a system. Figure 6 illustrates loudness curves for a normal hearing person and a hearing-impaired user of the

hearing aid device (col. 10, lines 34-39). The shown curves are derived from data of a normal hearing person and a hearing impairment person (col. 10, lines 37-39 and 45-48). The hearing characteristics of a user are obtained from a fitting device (31) and stored in advance in a memory (24), where they are then retrieved for the calculation of the applied gain in the system (col. 9, lines 62-64 and col. 10, lines 11-17). The function of the fitting device (31) to store the hearing characteristics of the user in the memory (24), wherein loudness levels relate loudness and sound pressure, reads on "measuring and quantifying loudness perception parameters of the loudness perception of the individual". The function that is shown in Figure 6 for approximating the loudness curve of a normal hearing person is based on information obtained from the memory section (col. 11, lines 20-22). This data, including loudness versus sound pressure, reads on "a normal loudness perception and its parameters". In terms of hardware, a curve setting section (43) inputs the hearing ability data from the normal hearing person and the user, and determines the gain required for the hearing sense compensation section (22) (col. 11, lines 56-63). This established gain is based on the difference between the functions approximating the loudness curve of the normal hearing person and the individual user, represented generally by the equation  $G=b-a$ , where Figure 6 illustrates that a and b are sound pressure levels on the loudness curves of the normal person and user points, respectively, at the same detected loudness level ( $c'$ ) (col. 10, lines 45-50). Mathematically,

this basic difference equation may be rewritten as  $g=(1)*b+(-1)a$ . The coefficients of 1 and -1 in the above disclosed equivalence equation shown above read on "weighted by a first factor" and "weighting" the normal person's loudness perception "by a second factor". The fact that these coefficients have a unit or one absolute value does not preclude them from being reasonably interpreted as weighting factors, particularly in light of the negative sign of the value associated with the second component. It is further noted that the loudness function of the user is changed in the system of Ishige for sound pressure levels below  $c''$ , which suggests the coefficients in the above equivalence equation being different from each other.

Regarding **Claim 2**, as detailed above, the gain of the system is based on the loudness functions of a normal person and a user (col. 10, lines 34-50). This reads on "wherein compression and/or amplification is/are adjusted in the hearing aid". Ishige also states that every frequency band of the input sound signal is analyzed, and that the gain for every frequency band is determined by the control section (23) and the gain is applied by the hearing sense compensation circuit (col. 10, lines 19-30). This determination of the gain per frequency band reads on "the amplification are each determined as a function of frequency".

***Allowable Subject Matter***

**Claims 5 and 10-12** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in



independent form including all of the limitations of the base claim and any intervening claims.

### **Conclusion**

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Graham whose telephone number is 703-308-6729. The examiner can normally be reached on Monday-Friday, 8:30 AM to 5:00 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Isen can be reached on (703)305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Application/Control  
Number: 09/829,700  
Art Unit: 2644

Page 9

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AK  
Andrew Graham  
Examiner  
A.U. 2644

  
HUYEN LE  
PRIMARY EXAMINER

ag  
December 23, 2004